

ATOMIC ENERGY

FIVE HUNDRED NINE FIFTH AVENUE NEW YORK 17, N.Y.

Dear Sir:

October 11th, 1949.

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Philip Sporn, president, American Gas and Electric Co., told the National Coal Association, at its annual convention in New York last week, that development of low-cost power, through use of nuclear energy, would stimulate manufacturing and processing industries in which consumption of electricity is a major factor. He said widespread use would depend on future reduction of costs to where atomic power could be competitive with coal and other fuels. Mr. Sporn is chairman of the advisory committee on co-operation between the power and light industry, and the Atomic Energy Commission.

"The Future of Nuclear Power", an address by Albert Baker, V.P., Kellex Corp., and a talk on "Isotopes in Industry", by Dr. John Dunning, Columbia University, will comprise a joint meeting of American Society of Mechanical Engineers, and American Society for Testing Materials, on October 28th, in the Engineering Societies Building in New York.

Although the staff-prepared "working paper" of the Joint Congressional Committee on Atomic Energy absolves the AEC of the recent "incredible mismanagement" charge which Senator Hickenlooper had levelled against it, a vote of 10 to 8 last week by the Committee (on straight party lines) will prevent its release. Some Republican Senators wish the investigation continued...At another session of the Committee in Washington last week, testimony was heard from the Secretaries of the Air Force, Navy, and Army, as well as the Joint Chiefs of Staff, in a 2-hour session devoted to "atomic explosives". The Commander of the Strategic Bomber Command, whose aircraft presumably can carry atomic bombs, participated.

The three-power atomic talks now being held in Washington by the U.S., Canada, and Britain (AEN: 9/27/49), have looked to the best joint utilization of materials, techniques, and knowledge, available to the three countries, in the field of atomic energy, James E. Webb, acting Secretary of State, declared in Washington last week. However, any proposal that would involve a greater sharing of United States knowledge or technical information must have Congressional approval...Decrying this blanket security, Robert F. Bacher, physicist, Cornell University, and former AEC Commissioner, told a California Institute of Technology meeting in Los Angeles last week that we are exchanging information on such a limited front that it is almost certain the same problems are being studied in the U.S., Canada and Britain. If the aim is mutual progress, he declared, such a policy makes little sense.

Frustration and disaster will result if we regard atomic energy exclusively or primarily as a military weapon, David E. Lilienthal, Chairman, U. S. Atomic Energy Commission, states in his new book, "This I Do Believe", published last week by Harper and Son, New York. It is as if, he says, we should regard fire or explosives merely as weapons, and overlook their enormous value in economic and social development generally. And, he submits, Congressional interference, with its item-by-item control, detailed supervision, and the mixing of politics into technical matters, will harm our atomic energy enterprise.

AT THE ATOMIC CITIES OF THE UNITED STATES...

ARCO, Idaho- For construction of the Experimental Breeder Reactor building, here at this site of the new Reactor Testing Station, bids have been asked for furnishing, delivering and erecting approximately 190 tons of fabricated structural steel. Specifications may be obtained from the USAEC, Idaho Falls, Idaho; deadline for bid submission is October 18th. Steel will be ordered as part of the advance planning for the project, to insure delivery when required. The Experimental Breeder is being built by Argonne National Laboratory, in Chicago, and engineering work for the building, special equipment, and reactor auxiliaries are being furnished by the Austin Company, Cleveland and Seattle. The reactor will be the first attempt to demonstrate the theory of breeding nuclear fuel, i.e., to produce more fissionable material than is consumed.

Lines, to bring electrical power for both the Breeder Reactor and for water pumping, will be strung from the Scoville 44,000 volt substation in Butte County, Idaho. The work, which will comprise stringing 4.65 miles of 12,000 volt electrical distribution lines, as well as installing associated equipment, will be accomplished under a negotiated lump-sum contract. Labor will be furnished by Fonnebeck Electric Service, Idaho Falls, as sub-contractor to Utah Power and Light Company.

RICHLAND, Washington- A payroll of \$30 million annually, at the Hanford Plutonium Works here, recently disclosed by a high General Electric official as that company's annual disbursement for such purpose, may be taken as an index of the scale of manufacture of plutonium here. (G-E is prime contractor here for both plant and town.) New facilities (AEN: 9/15/49, ATOMIC CITIES) here will boost plutonium output; however, until additional work actually starts, outlook by business men at North Richland, town for construction workers where February's 13,500 population has dwindled to 3,000, is one of uncertainty. In Richland itself, faith in continuity of plutonium manufacture is attested by 66 business men who, since the town's commercial expansion program began last year, have made agreements to set up operations in this "plutonium" town.

LOS ALAMOS, New Mexico- A 4500-foot tunnel, with a bore approximately 8 to 10-feet in diameter, to penetrate the mountains near Los Alamos, and a 5-mile access road with a 20-foot gravel surfaced roadway, are projects announced here to bidders, who are advised to inspect the tunnel site before November 1st, 1949 --after that date it will be covered with snow and inaccessible. Bids probably will be opened in January, 1950; the job (to start when climatic conditions allow) is to be completed by November, 1950. For the tunnel section, metal plate with concrete lining probably will be required. Material to be penetrated is expected to be volcanic rhyolite tuff. Plans and specifications (deposit, \$50) are available from the USAEC, at Los Alamos, under bid inv. 291-50-27.

Construction of a laboratory building, A-19, at Sandia Base, near Albuquerque, with a passage and guard building to connect it to the existing AEC Administration building, has been opened for bidding. Under bid invitation serial Eng. 291-50-24 (closing date unannounced), the U.S. Corps of Engineers, P.O. Box 1538, Albuquerque, have advertised this work to be done at Sandia, the atomic bomb and engineering base, branch of nearby Los Alamos.

OAK RIDGE, Tennessee- In the general building improvement program here, Midland Land and Development Co., Midland, Texas, were low bidders at \$638,322.00 to rehabilitate 504 TDU (temporary dwelling units) houses in the Oak Ridge community. New foundations, roofing, electrical work and painting will be type of work done...Oak Ridge's new town council in its first meeting recently, set up a planning and zoning commission of 8 residents; job will be to help AEC operating officials get "grass roots" approach in town's development.

NUCLEAR INSTRUMENTS...and products...

First usable amounts of actinium, rare radioactive element, are seen in recent announcement that Boris Pregel, president, International Rare Metals Refinery, New York, has devised a process for its quantity production. Heretofore not used for any commercial or scientific purpose, since the only obtainable amounts were minute quantities, actinium, which is safer than radium, and weight for weight about 150 times more active, may displace that element in many applications and should find other uses in medicine, industry, and nuclear research.

"Ionotron" static eliminators, product of U.S. Radium Corp., are now to be installed by A. T. & T. on its nation-wide Bell System teletypewriters. The Ionotron consists of a radioactive substance uniformly distributed throughout thin metal foil (usually gold or platinum) which is welded to a heavier, metallic, non-radioactive backing. The emitted alpha rays ionize the air in the immediate vicinity, make it conductive, and (in this particular installation) discharge the static electricity developed by the rolls of paper and the paper tape of the teletypewriters. Surveys made by Tracerlab, Inc., Boston, and State health authorities, have shown that operators will not receive more than 3 to 4% of the maximum permissible daily dose of radiation. (Now maximum dose is 100 milliroentgens per 8-hour day; proposed are 300 milliroentgens per week.)

A portable gamma ray spectrometer is being developed in Canada for use in prospecting for uranium and allied substances. Work on the device at the University of Manitoba is under Dr. R.W. Pringle, Dr. K.I. Roulston, and Dr. G.M. Brownhill. They state it may affect present field methods of detecting and measuring radioactivity.

An ionization chamber instrument designed and produced by the Kelley-Koett Manufacturing Co., Covington, Ky., for the Armed Forces Special Weapons Project (to Signal Corps specifications), was shown in Washington last week. The AFSWP said the instrument was to detect and measure relatively large concentrations of radiation such as would result from an atomic bomb explosion. Its immediate use will be to train troops in radiation survey work in the field.

FROM THE MANUFACTURERS- Raydec Decimal Radiation Counter. An electronic scaler with such features as: 10,000 to 1 electronic scaling with true decimal data presentation; dual input channels for individual or coincidence counting; automatic elapsed time indicator; auxiliary connectors for pulse monitoring; complete electronic voltage stabilization for low voltage and Geiger-Muller power supply.--Engineering Physics Div., Frederic Flader, Inc., N. Tonawanda, N.Y.

Geiger-Muller laboratory counting rate meter and counter set; model RM4A. Has four linear direct counting ranges of 5, 50, 500, and 5,000 pulses per second; provisions for pen recorder and impulse register counting circuits. --El-Tronics, Inc., Phila. 33, Pa.

ATOMIC PATENT DIGEST...

Apparatus for accelerating charged particles to a very high velocity. Complete specifications accepted by British Pat. Office, Sept. 21st, 1949. Pat. No. 628,806, to General Electric Co., Ltd., and W.E. Willshaw.

Fast neutron meter. An apparatus for measuring neutron intensity and discriminating between the ionization effects of neutrons and gamma rays. U.S. Pat. No. 2,481,964, issued Sept. 13th, 1949, to Ernest O. Wollman, Chicago, Ill.

Method and apparatus for logging boreholes. A means to determine the character and location of formations traversed by the hole, by passing through the hole a source of radiation from which neutrons and gamma rays are emitted. U.S. Pat. No. 2,483,139, issued Sept. 27th, 1949, to Gerhard Herzog, Houston, Texas, and assigned to the Texas Company.

RADIOISOTOPES and RADIATION...investigations and case studies...

Okoseal, a polyvinyl chloride, manufactured by the Okonite Company, and Saran, a vinylidene chloride, made by the Dow Chemical Company, were subjected to 2.5 M.e.v. X-radiation by investigators at Massachusetts Institute of Technology. Objective was to determine the volume conductivity changes in these plastic dielectrics during such irradiation. With Okoseal, the conductivity increased very rapidly at the start of the irradiation, quickly reaching an equilibrium value dependent on irradiation rate. At an irradiation rate of approximately 400 R/min., this value was about thirty times the original conductivity. When the irradiation was stopped, the recovery was half-complete in 30 minutes; nine-tenths complete in 16 hours. Saran showed different characteristics. Its conductivity increased slowly over a period of about two hours, with irradiation at a rate of 2,000 R/min., until it had about three times the original conductivity. Initial recovery rate was much slower than for Okoseal; after 82 hours, recovery was complete to within the precision of the experiment. The experimenters found that the extent of change and the time constants are not readily predictable; they believe that a considerable spread in the magnitude of these factors is to be expected among the various plastic dielectrics.

Discussing radioactivity logs and their quantitative determinations, Robert E. Bush, of Lane-Wells Co., Alice, Tex., and E. S. Murdoch, Well Surveys, Inc., Tulsa, Okla., went into some practical methods of applying radioactivity logs at the Fall meeting of the Petroleum Branch of the American Institute of Mining and Metallurgical Engineers, held last week in San Antonio, Tex. Problems of interest to both those engaged in evaluating fundamental reservoir data, as well as those concerned with subsurface structural work, were covered by the speakers.

MEDICAL ASPECTS.- Four cases of beta ray burns of the hands, incurred at the Eniwetok atomic bomb tests in May, 1948, when radioactive material was handled with the bare hands or rubber gloves, instead of the prescribed handling devices, have been treated by Los Alamos health division doctors. The patients, men in their late twenties, wore film badges or pocket ionization chamber instruments on their chests which recorded gamma ray dosages of 1 to 15 r.; since their hands were closer to the radioactive material, exposure there was estimated to be greater by a factor of ten. The burns passed through four phases, from an initial itching and tingling sensation on exposure, to a peeling of the skin, and finally into the chronic stage when ulcers formed which would not heal and that required skin grafts. Loss of soft tissue in the fingers, and loss of power to move the fingers, also occurred in some cases. Local treatment was routine burn therapy, with accessory chilling. (Surgical debridement was followed by skin grafts.) General treatment consisted of the use of rutin, a high protein diet, multiple vitamins, and penicillin.

Rutin, a chemical that restores weakened blood capillaries after they have been damaged by beta rays (as above), can now be produced from asparagus, A. E. Stevenson, a Continental Can research chemist reports from Chicago. Stevenson found that asparagus, too mature for marketing, may be a practical source of the chemical, first isolated from tobacco, and now obtained from buckwheat. (AEN: 9/13/49-Rutin as a preventive of radiation sickness.)

Because of the finding of cataracts in a number of persons who were and are working with cyclotrons and other radiant energy producing processes, the Committee on ophthalmology of the National Research Council has sent an assistant professor of ophthalmology at Harvard Medical School, and an assistant surgeon at the Massachusetts Eye and Ear Infirmary, to conduct a 3-month's survey (begun Sept. 3rd) of persons who were exposed to the atomic bomb explosion at Nagasaki and Hiroshima.

RADIOACTIVE MINERALS...discoveries and workings

UNITED STATES...Denver, Colorado- W.C. Paterson, of the International Minerals Laboratory here, reports he has made a recent find in this State of pitchblende assaying from 60 to 76% uranium oxide. According to Paterson, the formation in which the discovery was made is similar to that in which Canadian pitchblende is found.

...Coeur d'Alene, Idaho- A pitchblende strike in the Sunshine Silver Mining Company's silver mine here was recently described by Dr. J.K. Gustafson, in Washington, D.C., as of "pretty good quality". Dr. Gustafson is the AEC Director of Raw Materials. R.D. Leisk, general manager of Sunshine, said small amounts of pitchblende were identified in several small veins and stringers on the 3,100 and 3,700-foot levels of the mine. (An advance in the company's stock on the Spokane Exchange was attributed in some quarters to this find. It was reported that most of the buying orders responsible for the rise originated in Washington, D.C.)

...Anchorage, Alaska- Indications of radioactive minerals in the Askenuk mountains, a little-known range east of Scammon bay on the Bering sea, have been reported by Frank Waskey of Marshall, who recently returned from a plane expedition to the desolate area near the mouth of the Yukon river.

CANADA- Eldorado Mining and Refining (1944) Ltd. chief Canadian producer of pitchblende, recently revealed that its net earnings for 1948 were over \$1.5 million Canadian dollars. At its mining operations at Port Radium, N.W.T., and refinery at Port Hope, Ontario, during 1948, there was a slight reduction in gross mine costs, and in the cost per ton milled and sorted. At the end of 1948, the company held 193 claims in the Goldfields area, Saskatchewan, where its exploration program was concentrated; \$468,700.00 was spent on this program. The Government owned company states that during 1948 it had increased both sales and rentals of radium, radium products and accessories in the United States, where it finds its best market. It also made improvements in filling techniques and servicing of these products.

At the Lake Athabasca property of Orbit Uranium Developments, C. S. Johnson, consulting engineer has reported 6 radioactive finds. Chemical analyses of three samples showed 4.67%, 13.64%, and 5.84% uranium oxide...The underground work at Camray Mines, Lake Superior, has exposed a pitchblende stringer at the first drift round on the first level. Intensive surface work is also in progress here...Misto Mines, Ltd., at Black Lake, northern Saskatchewan, have uncovered showings consisting, in general, of long narrow breaks, mineralized with pitchblende. There are, however, some sections where the pitchblende occurs over a good mining width.

The Bureau of Mines, Ottawa, has recently published a report on a chemical method of assaying to determine the uranium content of ores. Under the title, "Determination of Uranium Ores by the Modified Mercury Cathode-Cupferron Method," the report, prepared by F. T. Rabbits of the Radioactivity Division, may be obtained on request.

AUSTRALIA- To encourage the mining of uranium, a buying pool has been set up by the Australian Government, Senator Armstrong, Minister for Supply, recently announced. He said the pool is based on purchasing systems similar to those of the U.S., Britain and Canada.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER